

## REMARKS/ARGUMENTS

Claims 1-11 are pending herein. Claims 7-10 have been withdrawn as being drawn to a non-elected invention. Claim 1 has been amended and new dependent claim 11 has been added hereby. Applicant respectfully submits that proper support for the new and amended claims can be found, for example, on pages 7-9, 15-16, 18 and 21-22 of the original specification (as amended pursuant to the changes shown in the substitute specification paragraphs filed with the Amendment on January 31, 2006) and in the originally filed drawings. Applicant respectfully submits that no new matter has been added.

1. Claims 1-6 were rejected under §112, first paragraph. Applicant respectfully traverses this rejection.

Independent claim 1 recites, among other things, a mixing tube having a partition member that includes a plurality of holes formed therein, and also recites that each of the holes has the same size as one another.

The PTO asserted that there is no original support for the recitation of a plurality of holes, each having the same size as one another (Office Action, page 3, lines 16-18). Applicant respectfully submits, however, that the PTO is incorrect because the original disclosure does, in fact, properly support this feature for at least the reasons explained below.

Applicant submits that the drawing figures submitted when the application was originally filed, and particularly Figs. 3 and 9, for example, clearly show that the holes formed in the partition members each have the same size as one another. Moreover, Applicant respectfully submits that not only a reasonable person of ordinary skill in the art, but even any reasonable lay person, upon viewing the drawings, would come to the conclusion that the drawings show that each of the holes has the same size as one another. It is well settled that the disclosure expressly shown in and encompassed by the original drawing figures can properly support claim features. See, for example,

MPEP Section 2163(I), 3<sup>rd</sup> paragraph, lines 1-3 and specifically *Vas-Cath, Inc. v. Makurkar*, 19 USPQ2d 1111, 1119 (Fed. Cir. 1991), wherein the Court stated that what is shown in drawings alone can satisfy the written description requirements of §112, and the Court also stated that "consideration of what the drawings conveyed to persons of ordinary skill in the art is essential." Again, Applicant respectfully submits that any skilled artisan, or even any reasonable lay person, looking at the present drawings would easily conclude that the drawings convey that each of the holes in the partition member has the same size as one another.

In addition, the present specification repeatedly explains that the size of each of the holes 15c is one-half the size of one of the passage blocks 11 and 12 in Fig. 3 (see, for example, page 23, lines 6-8). Applicant respectfully submits that if each of the holes has a size that is one-half the size of one of the passage blocks, then all of the holes would have the same size as one another, whether the one passage block was passage block 12 or whether the one passage block was instead passage block 11.

Moreover, Applicant respectfully submits that Figs. 3 and 9 also show that the passage blocks 11 and 12 have the same size as one another. Along those lines, even if some of the holes in the partition member were one-half the size of passage block 11, and other holes were one-half the size of passage block 12, the holes would still be the same size as one another since the size of passage block 11 is the same as the size of passage block 12. In view of the above, Applicant respectfully submits that one skilled in the art would readily understand that the holes in the partition member each have the same size as one another, based on the express support shown in the original drawings and provided in the original specification.

In the Advisory Action, the Examiner not only maintained this rejection, but further alluded to making an art rejection based on his own personal interpretation of what he believes is shown in the prior art drawings. That is, the Examiner asserted that if any weight could be given to the argument that the drawings in the present application sufficiently show and support a claim limitation of holes each having the same size as one another, those same arguments should also apply to the evaluation of

the holes shown in the prior art drawings. Applicant respectfully submits, however, that if the same argument (that the patent drawings provide support for the claim limitation that the holes each have the same size) was applied to any of the prior art drawings, the argument would fail because these drawings still fail to convey holes each having the same size.

That is, according to what is actually shown in and conveyed to a skilled artisan by the drawings in Flint '209, the circular holes (openings) 152a-152c shown in Figs. 7 and 8 are visually represented to be smaller than the other circular holes 154a-154c in the intermediate sheet; these drawings clearly show and convey that each of the holes does not have the same size as one another. Moreover, the accompanying text in Column 6, lines 50-51 of Flint '209 explicitly confirms what is shown in the drawings, that each of the holes in the intermediate sheet are not the same size.

Similarly, the drawings in Flint '632, and Fig. 3, for example, clearly show that the circular openings 80 in the intermediate sheet 22 are smaller than the other circular openings 85 shown in the intermediate sheet. And again, this deliberate difference in the size of the holes in the same intermediate sheet is also confirmed and explicitly disclosed in Column 4, lines 25-33 of Flint '632.

Moreover, Applicant respectfully submits that the mixing tube shown in the drawings in JP '078 does not even include the claimed partition member, much less any holes having the same size as one another formed in the otherwise missing structural element. In fact, Applicant respectfully submits that the holes in JP '078 are merely sectional portions of the conduits themselves, not openings formed in any conduit wall that otherwise intervenes between and separates the two conduits of the mixing tube in the manner of a partition member.

For at least the reasons explained above, Applicant respectfully submits that when looking at the prior art drawings, it is clear that none of the prior art drawings show, or even reasonably suggest that each hole formed in an intermediate sheet (partition member), if there even is a partition member, has the same size as one another, as claimed. Moreover, Applicant respectfully submits none of the prior art

drawings could possibly be interpreted by a skilled artisan to convey this feature, particularly in view of the express, contrary disclosure provided by the text of the references themselves (which, again, actually teach that the holes are deliberately formed to have different sizes).

For at least the foregoing reasons, Applicant respectfully submits that the original drawings, in conjunction with and as an essential part of the original disclosure, do, in fact, show the claimed same sized hole feature and provide proper support for all of the features recited in independent claim 1, and all claims depending therefrom. Accordingly, Applicant respectfully requests that the above rejection be reconsidered and withdrawn.

2. Claims 1-6 were rejected under §102(b) over Flint '209, Flint '632 and JP '078, each taken separately. Applicant respectfully traverses these rejections. To the extent that the PTO may attempt to assert these rejections against new claim 11, they are respectfully traversed.

Independent claim 1 recites a mixing tube comprising a first mixing passage and a second mixing passage, in each of which a plurality of elements having a sectional shape that changes continuously are connected in series, such that a plurality of types of materials to be mixed pass through the first mixing passage and the second mixing passage, whereby the materials to be mixed are repeatedly divided and aggregated  $2^N$  times in a passing process. The first mixing passage and the second mixing passage are formed by a first outer frame member, a second outer frame member, and a partition member is interposed between the first outer frame member and the second outer frame member, the three members dividing the mixing tube in a direction toward which the materials to be mixed pass. A plurality of holes, each having the same size as one another, are formed at fixed intervals in the partition member in a direction along which the materials to be mixed are mixed, such that the first mixing passage and the second mixing passage repeatedly divide and aggregate due to the holes, thereby repeatedly dividing and aggregating the materials to be mixed

so that the materials to be mixed are divided  $2^N$  times and merged together. The mixing tube comprises a soft thermoplastic resin which can be squeezed over its entirety with a predetermined force.

Applicant respectfully submits that Flint '209, Flint '632 and JP '078 do not disclose or even suggest that each opening in an intermediate sheet has the same size as one another, as claimed, for the reasons already explained in the Request for Reconsideration filed on July 10, 2006, the entirety of which is incorporated herein by reference, and for the further reasons explained in Section 1 above.

That is, Flint '209 expressly shows and expressly states that the circular openings in the intermediate sheet do not each have the same size as one another (see Flint '209, Figs. 7 and 8 and Col. 6, lines 50-51). Flint '632 shows and expressly states that there is a clear and deliberate size difference among the various circular openings provided in the intermediate sheet (see Flint '632, Fig. 3 and Col. 4, lines 25-33). And again, Applicant respectfully submits that JP '078 does not even disclose the claimed partition member, among other features of claim 1, much less that holes each having the same size as one another could possibly be formed in the otherwise completely missing structural element.

In addition, rewritten independent claim 1 recites that the materials to be mixed are divided  $2^N$  times and merged together by virtue of the particular structural features and arrangement thereof in the mixing tube recited in claim 1. Applicant respectfully submits, however, that Flint '209, Flint '632, and JP '078 simply do not disclose or even suggest mixing structures that provide the claimed  $2^N$  times mixing feature.

For example, Applicant respectfully submits that in the mixers in Flint '209 and Flint '632, the structures are provided to facilitate turbulent flow mixing, which is understood and evidenced by the fact that Flint expressly calls for the holes in the intermediate sheet to have different sizes. Applicant respectfully submits that the holes are clearly and expressly not all the same size, and are not all formed in a fixed interval manner along the mixing direction sufficient to instead provide laminar flow  $2^N$  times mixing, as claimed.

The mixing tube of JP '078 not only lacks an intermediate sheet (or partition member), as explained above, but also lacks the first outer frame member and second outer frame member that are required according to claim 1. The actual mixing characteristics provided by virtue of the structure of the tube of JP '078 are not even a consideration in view of the lack of disclosure as to the other essential structural features of the mixing tube recited in claim 1.

New independent claim 11 recites that each of the same-sized holes in the partition member has a polygonal outer peripheral shape. Applicant respectfully submits that this feature is clearly supported by the original disclosure and clearly conveyed to a skilled artisan by what is shown in the drawings. Applicant respectfully submits that this feature is also not disclosed or suggested in any of the applied references, which do not even disclose the prerequisite same-sized holes (Flint '209, Flint '632) or the claimed intermediate sheet (JP '078) in the first place, as explained above.

For at least the foregoing reasons, Applicant respectfully submits that all claims pending herein define patentable subject matter over the applied references, and respectfully request that the above rejection be reconsidered and withdrawn.

If the Examiner believes that contact with Applicant's attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicant's attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

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Date

Respectfully submitted,



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